**AP STATISTICS Ch. 18: Central Limit Theorem/ Sampling Distributions**

**Sampling Distribution:**

* A histogram of repeated samplings
* Can make them with…
* Examples:
* Use them to…

**Central Limit Theorem:**

* A sampling distribution can be…
* The larger the sample…
* Doesn’t matter…

**PROPORTIONS:**

A sample of size *n* is taken from a population with a center of *p* (true proportion or %).

Sampling distribution of sample proportions (

MEAN: STD. DEVIATION:

* According to the CLT, if *n* is large enough …
* Also, the following conditions must be met (STATED & CHECKED):
* If all of these are met, we can say our sampling distrib. is NORMAL 🡪

**Example:** According to the manufacturer of the candy Skittles, 20% of the candy produced is the color red. What is the probability that given a large bag of skittles with 58 candies that we get at least 17 red (0.293 red)?

**MEANS:**

A sample of size *n* is taken from a population with a center of µ(true average) and std. deviation of σ.

Sampling distribution of sample proportions (

MEAN: STD. DEVIATION:

* According to the CLT, if *n* is large enough …
* Also, the following conditions must be met (STATED & CHECKED):
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***Example:*** Suppose that male seniors have a mean score of 1200 with a standard deviation of 130. We take a random sample of 100 male seniors.

1. If we assume a normal population, what would the distribution be for the male seniors (not the sample)?
2. What is the probability that **a randomly selected senior** scores less than 1150?
3. What would the distribution of sample means look like?
4. What would be the probability that we would get an **average** for the sample of male seniors of less than 1150?

p. 434 #15, 37, 39

Book problems:

p. 434 #16, 20, 22, 38, 48

1) Write important info (n, p, std. dev, x-bar, etc.)

2) STATE and CHECK conditions

3) Write model: N( , )

4) Solve problem (use prob. notation!)